



Who is most at risk of HIV infection?

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Overview

Although diagnosis of HIV infection is not a direct measure of disease incidence, trends in the distribution of HIV diagnoses are the best available indicators for who is most at risk of HIV infection. While the distribution of all HIV diagnoses across gender and race/ethnicity has remained fairly steady in the past five years, there has been a shift in the distribution of race/ethnicity among females. From 1999 to 2003, the proportion of females diagnosed with HIV infection who are black increased from 40% to 51%, while the proportion of white females decreased from 31% to 18%.

Recently, there has also been a shift in the distribution of HIV diagnoses by place of birth. From 1999 to 2003, the proportion of HIV diagnoses among people born outside the US increased from 18% to 29%. Among females this proportion increased from 29% to 42%. Among black females diagnosed with HIV infection within the years 2001 to 2003, 61% were born outside the US compared to 7% of white females, and 21% of Hispanic females.

Changes have also occurred in the distribution of HIV diagnoses by exposure mode. The proportion of all HIV diagnoses with male-to-male sex as an exposure mode increased from 28% in 1999 to 35% in 2003. Among males, the proportion of HIV diagnoses with male-to-male sex as the reported mode of exposure increased from 41% in 1999 to 50% in 2003. During the same time period, the proportion of cases with injection drug use as the primary reported exposure mode decreased from 29% in 1999 to 14% in 2003. While caution should be used in the interpretation of this decline, it can be noted that jurisdictions across the nation have seen a similar decline in the incidence of HIV diagnosis among injection drug users.

The following analyses depict trends in HIV diagnosis and describe populations at risk of HIV infection in Massachusetts in greater detail.

Trends in HIV Diagnoses from 1999 to 2003

General Statistics

- Of all people diagnosed with HIV/AIDS and reported in Massachusetts, 20,158 were diagnosed with HIV infection before 1999, 1,295 were diagnosed with HIV infection in 1999, 1,123 in 2000, 955 in 2001, 993 in 2002 and 742 in 2003. (Note: 2003 data are preliminary and the number will increase with late reports of diagnoses made in 2003.)

Gender

- From 1999 to 2003, the distribution of people diagnosed with HIV infection by gender has remained steady, with 68% to 71% being male and 29% to 32% being female.

Race/Ethnicity

- Compared to people diagnosed with HIV infection before 1999, black individuals and Hispanic individuals represent a larger proportion of reported cases among people diagnosed from 1999 to 2003.
- From 1999 to 2003, the distribution of HIV infection across race/ethnicity has remained fairly stable.

Gender and Race/Ethnicity

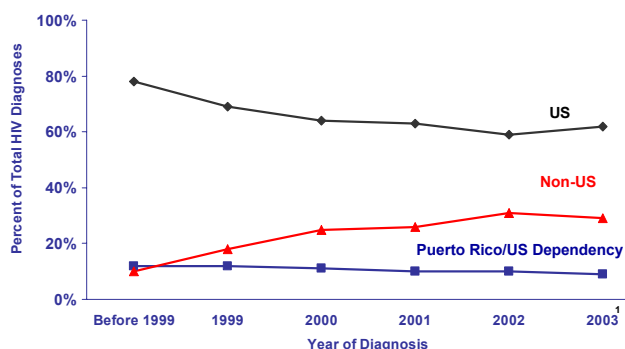
- Among **males** the distribution of HIV infection across race/ethnicity has remained fairly stable from 1999 to 2003.
- During the same time period, the proportion of **females** diagnosed with HIV infection that are black increased from 40% to 51%, while the proportion of white females decreased from 31% to 18%.

For more detailed information and a description of data limitations please see "HIV/AIDS in Massachusetts: An Epidemiologic Profile." For detailed data tables and technical notes see Appendix.

Place of Birth and Gender

- From 1999 to 2003, the proportion of people with diagnosed HIV infection born outside the US increased from 18% to 29%, while the proportion of HIV diagnoses to people born in the US decreased from 69% to 62%, for people born in Puerto Rico and other US dependencies, the proportion decreased from 12% to 9%.
- In the past 5 years, the proportion of **males** diagnosed with HIV infection that were born outside the US or Puerto Rico and other US dependencies increased from 14% to 23%.
- During the same time period, the proportion of **females** diagnosed with HIV infection and born outside the US or Puerto Rico and other US dependencies increased from 29% to 42%.

Figure 1 Percentage Distribution of People Diagnosed with HIV Infection by Place of Birth and Year of Diagnosis: MA, Before 1999, 1999-2003¹



Note: a dashed line is used to distinguish between pre-1999 data (which is an aggregate of multiple years) and annual data for subsequent years. ¹ 2003 HIV data are preliminary; Data Source: MDPH HIV/AIDS Surveillance Program; Data as of 7/1/04

Exposure Mode and Gender

- From 1999 to 2003, the proportion of all HIV diagnoses with male-to-male sex as the reported exposure mode increased from 28% to 35%, while the proportion with injection drug use decreased from 29% to 14%.
- Among **males**, the proportion of HIV diagnoses with male-to-male sex (MSM) as the reported exposure mode increased from 41% in 1999 to 50% in 2003.
- In 2003, injection drug use (IDU) accounted for a smaller percentage (15%) of HIV diagnoses among **males** than in earlier years.

- From 1999 to 2003, the proportion of HIV diagnoses among **females** exposed to HIV through heterosexual sex with partners of unknown risk and HIV status (presumed heterosexual sex) increased from 34% to 48%.
- The proportion of HIV exposures among **females** attributed to injection drug use (14%) is less in 2003 than in prior years.

(Note: Caution should be used in interpreting large increases or decreases from one year to the next. Reporting artifacts, such as underreporting of cases in certain risk categories, may account for some of these differences, particularly in more recent years.)

Perinatal Exposure to HIV infection

- The number of HIV infections transmitted perinatally by mothers known to be HIV positive who gave birth in Massachusetts, has decreased markedly in the past ten years from 32 in 1992 to 0 in 2001.
- The percentage of HIV positive mothers who knew their HIV status before giving birth has increased from 77% in 1991 to 98% in 2001.
- Of women who knew their HIV positive status before giving birth in Massachusetts in 2001, 100% received antiretroviral therapy during pregnancy and/or during labor and delivery.

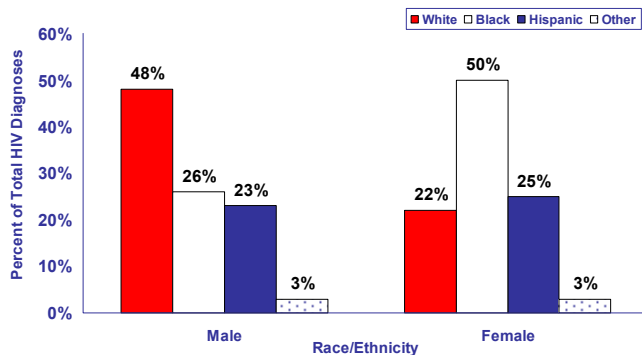
Age at HIV Diagnosis

- In 2003, 6% of people diagnosed with HIV infection were 13-24 years old, 11% were 25-29 years old, 18% were 30-34 years old, 22% were 35-39 years old, 18% were 40-44 years old, 13% were 45-49 years old, and 12% were 50 years old or above.
- The proportion of people diagnosed with HIV infection at age 50 years or above increased from 9% in 1999 to 12% in 2003.

A Profile of People Recently Diagnosed with HIV Infection: Race/Ethnicity and Gender

- The distribution of race/ethnicity differs between males and females diagnosed within the years 2001 to 2003. While 48% of **males** diagnosed with HIV infection within the years 2001 to 2003 are white, 50% of **females** diagnosed during this time period are black.

Figure 2 People Diagnosed with HIV Infection Within the Years 2001 to 2003 by Gender and Race/Ethnicity: MA

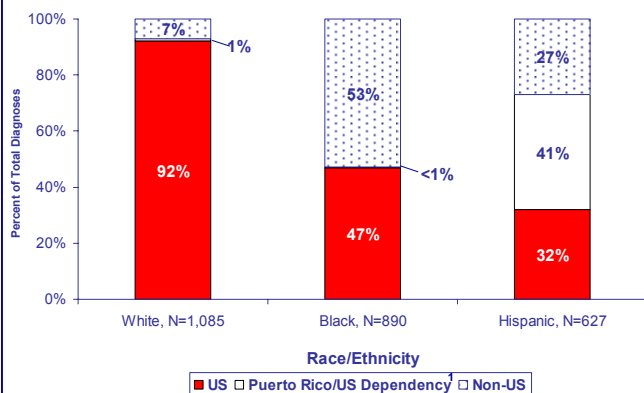


Data Source: MDPH HIV/AIDS Surveillance Program, Data as of 7/1/04

Race/Ethnicity and Place of Birth

- Fifty-three percent of black individuals diagnosed with HIV infection within the three year period 2001 to 2003 were born outside the US compared to 27% of Hispanic individuals and 7% of white individuals.

Figure 3 People Diagnosed with HIV Infection Within the Years 2001 - 2003 by Race/Ethnicity and Place of Birth: MA



¹ 94% of people diagnosed with HIV infection from 2001-2003 that were born in a US Dependency were born in Puerto Rico; Data Source: MDPH HIV/AIDS Surveillance Program, Data as of 7/1/04

- The majority of non-US born black individuals diagnosed with HIV infection within the three year period 2001 to 2003 came from Sub-Saharan Africa and the Caribbean, while the majority of non-US born Hispanic individuals and white individuals came from Central and South America.

Race/Ethnicity, Place of Birth and Gender

- Forty percent of females diagnosed with HIV infection within the three year period 2001 to 2003 were born outside the US compared to 24% of males. Among black **females** the proportion born outside the US is 61% compared to 21% of Hispanic females and 7% of white females. Among black **males** the proportion is 45% compared to 29% of Hispanic males and 7% of white males.

Race/Ethnicity and Exposure Mode

- While the predominant mode of exposure among white individuals diagnosed with HIV infection within 2001 to 2003 is male-to-male sex (58%), the predominant mode of exposure among black individuals is heterosexual sex with partners with unknown risk and HIV status (presumed heterosexual) (44%) and among Hispanic individuals is injection drug use (29%).

Race/Ethnicity, Exposure Mode and Gender

- Exposure mode among people diagnosed with HIV infection within the three year period 2001 to 2003 varies by race/ethnicity among both males and females.
- Among **white males**, male-to-male sex is the primary reported risk for HIV infection, attributed to 69% of exposures.
- Among **black males**, exposure mode is more evenly distributed with heterosexual sex with partners with unknown risk and HIV status (presumed heterosexual) accounting for 35%, male-to-male sex 18% and injection drug use 17% of exposures.
- Among **Hispanic males** exposure mode is also more evenly distributed with injection drug use accounting for 34% and male-to-male sex 31% of exposures.
- While the predominant mode of exposure among **white females** diagnosed with HIV infection within the years 2001 to 2003 is injection drug use (34%), the predominant mode of exposure among **black females** is heterosexual sex with partners with unknown risk and HIV status (presumed heterosexual) (56%) and among **Hispanic females** is heterosexual sex (41%).

Regional Distribution by Gender

- The Boston region has the highest proportion of males among people diagnosed with HIV infection within the three year period 2001 to 2003 at 74%.
- The gender distributions of the Central, Metro West, Northeast, Southeast and Western regions are similar with the proportion of females ranging from 31% to 39% of all people diagnosed with HIV infection from 2001 to 2003 and the proportion of males ranging from 61% to 69%.

Regional Distribution by Race/Ethnicity

- Race/ethnicity among people diagnosed with HIV infection within the three year period 2001 to 2003 varies by Health Service Region (HSR).
- While white individuals account for the largest proportion of people recently diagnosed with HIV infection in the Southeast (62%) and Northeast (40%) regions, Hispanic individuals account for the largest proportion in the Western region (51%).
- Race/ethnicity is more evenly distributed among people recently diagnosed with HIV infection in the Boston, Central and Metrowest regions.
- While relatively small, the proportion of recent HIV diagnoses that are among Asian/Pacific Islanders in the Northeast region (6%) is at least double that of all other regions.

Regional Distribution by Mode of Exposure

- Exposure mode among people diagnosed with HIV infection within the three year period 2001 to 2003 varies by Health Service Region (HSR).
- Male-to-male sex is the primary mode of exposure for people diagnosed with HIV infection in the Boston (42%) and Southeast (32%) regions.
- Injection drug use is the primary mode of exposure for people diagnosed with HIV infection in the Western (30%) region.
- In the Central region, presumed heterosexual sex is the attributed exposure among the largest percentage of people diagnosed with HIV infection at 28%.

- In the Northeast region exposure mode is more evenly distributed with male-to-male sex accounting for 32% and presumed heterosexual sex 28% of reported exposures to HIV infection.

People at Risk of HIV Infection State-funded HIV Counseling and Testing

- In 2003, 42,433 HIV tests were performed at State-funded HIV Counseling and Testing Centers, of which 1.1% (N=449) were positive.
- In 2003, more HIV tests were performed among males (62%, N=26,354) than females (37%, N=15,690) at publicly-funded counseling and testing (C&T) sites.
- The majority of HIV tests were performed for white (non-Hispanic) clients (42%, N=17,866) followed by Latino clients (26%, N=10,861) and African-American clients (19%, N=7,895).
- While 27% of positive HIV tests were among African-Americans, they account for only 19% of all tests conducted.
- By race/ethnicity, the highest percentages of positive HIV tests were among Haitians at 3.3%, Brazilians at 1.9% and African-Americans at 1.5%.
- While people ages 20-24 (22%, N=9,465) account for the largest number of total tests across age categories, the percent of positive tests among this age group is low (0.4%).
- While the number of total tests among people ages 45-49 (7%, N=2,899) is low, the percent of positive tests is the highest across age categories (2.1%).
- The highest percentage of positive HIV tests was among clients reporting male-to-male sex or both male-to-male sex and injection drug use as their risk (both 3.0%) followed by injection drug use (1.3%).

Behavioral Risk for HIV Infection Number of Sexual Partners

- Among 2,498 respondents to the 2002 Massachusetts Behavioral Risk Factor Surveillance System (BRFSS) survey, ages 18-64 years, 7% reported two or more partners, 75% reported one partner, and 17% reported no sexual partners in the past year.

- The largest proportions of people reporting two or more partners were young (19% of 18-24 year olds reported two or more partners), were men (9% of men reported two or more partners compared to 5% of women), and were Hispanic (11%).
- Fifty-one percent of **males** with a same sex partner reported two or more sexual partners compared to 9% of males with an opposite sex partner.
- Twenty-six percent of **males** ages 18-24 reported two or more sexual partners compared to 9% of males ages 25-34, 8% of males ages 35-44, and 4% of males ages 45-64.
- Thirteen percent of **females** ages 18-24 reported two or more sexual partners compared to 9% of females ages 25-34, 4% of females ages 35-44, and 1% of females ages 45-64.
- Eleven percent of **Hispanic females** reported two or more sexual partners compared with 5% of **white females** and 4% of both **black and Asian females**.

Condom Use:

- Of 1,985 sexually active respondents to the BRFSS ages 18-64, 24% reported using a condom at last sexual encounter (26% of male respondents and 22% of female respondents).
- Forty-three percent of Asian individuals and 33% of Hispanic individuals reported condom use at last sexual encounter as opposed to 22% of white individuals and 20% of black individuals.
- Regarding sex with multiple partners, 54% of those reporting 3 or more partners also reported condom use at last sex.
- Of men reporting a same-sex partner, 40% reported condom use at last sex, while 25% of men with opposite-sex partners reported condom use at last sex.

Data Sources:

HIV/AIDS Case Data: Massachusetts Department of Public Health, HIV/AIDS Surveillance System, All Data as of 7/1/04

Counseling and Testing Data: Massachusetts Department of Public Health, HIV/AIDS Bureau, Office of Research and Evaluation

BRFSS Data: Massachusetts Department of Public Health, Bureau of Health Statistics, Research and Evaluation, Behavioral Risk Factor Surveillance System